UCRL-CR-148020

University of California
Lawrence Livermore National Laboratory

Multiprogrammatic and Institutional Computing Capability Resource

Proposal Evaluation
and
Proposal Preparation Instructions

B525176

Version 2
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Contents

1 PROPOSAL EVALUATION

1.1 Evaluation Criteria

Evaluation criteria are performance features (the combination of mandatory requirements, target requirements and Offeror proposed features), delivery schedule, feasibility, supplier attributes, and affordability that the University will use to evaluate proposals. The University's assessment of each proposal's evaluation criteria will form the basis for selection.

1.2 Description of Requirement Categories

The mandatory requirement (designated MR) in Section 3.2.1 of the Statement of Work is a performance feature that is essential to the University requirements, and an Offeror must satisfactorily propose it in order to have its proposal considered responsive.

Target Requirements, identified throughout the Statement of Work, are features, components, performance characteristics, or other properties that may be considered a part of the system but will not result in a nonresponsive determination if omitted from a proposal. Target requirements are prioritized by dash number. TR-1 is the most desirable. Target Requirement responses will be considered as part of the evaluation of Technical Proposal Excellence.

1.3 Performance Features

The Offeror's proposal must demonstrate compliance with the mandatory requirement. The University's assessment of each proposal will form the basis for selection using the following criteria.

Technical Proposal

The University will evaluate how well the Offeror's technical proposal addresses the statement of work requirements.

- How well the technical proposal meets or exceeds the desirable technical requirements.
- How well the proposed solution meets the overall programmatic objectives expressed in the statement of work.
- The proposed hardware and software support model and how this model will provide at least three years of practical system maintenance. (i.e., will the maintenance model work in practice?) (Section 4.7)
- How well the proposed reliability, availability, serviceability and maintenance plan meets or exceeds the stated requirements. (Section 4.0)
- How well the Field Replaceable Unit (FRU) diagnostic plan meets or exceeds the stated requirements. (Section 4.5)
- The MTBF calculations on FRUs and each node type and the relationship of these calculations to the proposed on-site parts cache. (Section 4.8)
- How favorable the proposed power requirements, cooling requirements, floor space requirements and delivery requirements are when compared to others proposed. (Section 5.0)

- How well the technical proposal meets the open source development partnership goals. (Section 6.1)

Feasibility and Schedule Credibility
The likelihood that the Offeror's system will work as proposed.
The likelihood that the proposed delivery will be achieved. (Section 6.3)

- The quality and scope of the Offeror's early node delivery plan.
- The quality and scope of the pre-ship test plan.
- The quality and scope of the post-ship test plan.
- The quality and scope of the acceptance test plan.

How well the proposed technical approach aligns with the Offeror's corporate product roadmap.
The realism and completeness of the project Gantt chart.
The University's assessment of the risks associated with the proposed solution to both the Offeror and the University.

SUPPLIER ATTRIBUTES
Capability
The Offeror's experience and past performance in providing high-end computing systems and its demonstrated commitment to high-end computing customers.

- The quality and scope of the Offeror's performance record.
- The Offeror's demonstrated ability to meet schedule and delivery promises.
- The Offeror's ability to comply with the required or proposed delivery and performance schedules.

The Offeror's financial condition.

- The existence of adequate financial resources to perform the subcontract.

The Offeror's experience and past performance in providing solutions based on Open Source.

- The credibility of the Offeror's Linux cluster strategy.
- The alignment of this proposal with the Offeror's Linux strategy.
- The development and support resources available to the partnership.

The project manager proposed and the level of project management authority delegated by the corporation.

AFFORDABILITY

- Reasonableness of the total proposed price and the prices of proposed components and options in a competitive environment.
- The proposed price compared to the perceived value.
- The life cycle costs compared to those of the competition.
- The price trade-offs and options embodied in the Offeror's proposal.

2 GENERAL PROPOSAL INFORMATION

2.1 Proposal Format

Submit TWO (2) paper copies and ONE (1) electronic copy of your proposal as indicated. All proposal copies shall be presented using 8-1/2 by 11-inch paper in loose-leaf binders. The

page limit for the Technical Proposal (Volume I) is 50 pages and for the Business Proposal (Volume II) is 20 pages, and is defined as consecutively numbered pages. There is no page limit for the Price Proposal (Volume III) and Other Documents (Volume IV) portions of the proposals. At least 12-point font shall be used and the paper copies must be printed on one side only. Offerors must submit ONE (1) copy of their entire proposal electronically in Microsoft Office 2000 (Word, Excel, PowerPoint, Project), PDF format, or Rich Text Format. Submission of your proposal by electronic media (e-mail or FAT formatted 100MB ZIP disks or ISO standard CD-ROM) shall be considered by the University to be Certification that the media is virus free. Should any inconsistencies exist between the Offeror's paper copy proposal and the documents submitted on electronic media, the paper copy form of the Offeror's proposal shall take precedence.

Table 1. Proposal Format

VOLUME—SECTION NUMBER
Volume I Technical Proposal *(50 page limit total)* Section 1. Overall Approach and Objectives Section 2. System Architecture and Overview Section 3. MCR Cluster Description Section 4. Reliability, Availability, Serviceability, and Maintenance Section 5. Facilities Information Section 6. Project Management
Volume II Business Proposal *(20 page limit total)* Section 1. Company Qualifications Section 2. Linux Product Roadmap Section 3. Proposed Open Source Development Partnership
Volume III Price Proposal (*no page limit*) Section 1. System Prices Section 2. Options Prices Section 3. Lower-Tier Subcontractor Price Information
Volume IV Other Documents *(no page limit)* Section 1. Software Branding and Licenses, if applicable Section 2. System Warranty Information Section 3. Representations and Certifications Form

3 TECHNICAL PROPOSAL (VOLUME I)

In the Technical Proposal, the Offeror shall describe the systems proposed. This shall be written in the form of an integrated narrative **and shall include a point-by-point response to the technical requirements contained in the Statement of Work**. This narrative shall include a description of each of the proposed MCR systems. The Technical Proposal shall be divided into the following tabbed sections:

3.1 Section 1. Overall Approach and Objectives

Discuss the Offeror's approach to responding to this RFP and meeting the Multiprogrammatic and Institutional Computing (M&IC) programmatic objectives. Discuss

the overall software and hardware build strategy for the 960 node MCR cluster. Give a summary of what will be delivered when.

3.2 Section 2. System Architecture and Overview

The system architecture and overview section of the technical proposal shall contain the following information:

- Architecture—An executive summary that provides an architecture of the proposed MCR solution. The architecture should cover three areas: 1) overall system architecture; 2) architecture of each scalable unit; 3) architectural description of each node type proposed. Each architectural description will delineate major functional and performance capabilities.
- Deliverables—A list of hardware and software items to be delivered and the delivery dates, and quantities. This information shall be provided for items one level below the subsystem level.
- Definitions and Acronyms—A definition of terms, acronyms, and abbreviations used in the document.

3.3 Section 3. MCR Cluster(s) Description

This section shall contain a detailed description of the proposed MCR cluster. This includes a detailed response to each requirement in Section 3 of the statement of work. The response shall include the requirement number and text with Offeror's response below. If alternative approaches are chosen rather than those given as examples, then the alternative approach should be outlined in the same fashion as the example requirements. For instance, if 1U Dual Pentium 4/Xeon nodes are offered rather than the example requirements specifying 2U nodes, then the racking and scalable unit requirements would be different (e.g., fewer racks would be required) but follow the same general outline.

3.4 Section 4. Reliability, Availability, Serviceability, and Maintenance

This section shall contain a detailed description all facts relating to the reliability, availability and serviceability of the bid MCR cluster(s). In particular, provide the Mean Time Between Failures (MTBF) calculation for each MCR cluster bid. This calculation shall be performed using a recognized standard. Examples of such standards are Military Standard (Mil Std) 756, Reliability Modeling and Prediction, which can be found in Military Handbook 217F, and the Sum of Parts Method outlined in Bellcore Technical Reference Manual 332. In the absence of relevant technical information in the proposal, the University is forced to make pessimistic reliability, availability, and serviceability assumptions in evaluating the proposal. This section shall describe in detail the proposed hardware and software maintenance strategy throughout the life of the subcontract. Include the level of service you intend to provide at various points during the subcontract period (i.e., system build, system installation, acceptance testing, post acceptance, etc.). For hardware maintenance, specify the length of time (from initial purchase of parts for MCR build) that replacement parts will be IDENTICAL (e.g., same speed, same motherboards, etc.). In addition, delineate replacement parts policy once bid commodity components reach end of life until the end of the required three years of hardware maintenance.

Specific hardware maintenance roles and responsibilities for LLNL, Offeror, BlueArc, and Quadrics should be delineated. Specific elements of the spare parts cache and on-site hot spares shall be itemized. Failed hardware return mechanism and parts cache refresh policy shall be discussed. Software maintenance procedures shall be delineated for provided software components. For instance, describe how software patches are provided to LLNL and how are they will be tested.

3.5 Section 5. Facilities Information

Floor Plans. Provide a separate floor plan for each of the MCR clusters proposed, including any subsystems (e.g., I/O cabinets, disks, cabling, external networking, etc.). The floor plan will include a diagram of asset placement, as well as floor-loading information, and under-floor clearance requirements and placement and type of required electrical outlets.

Provide the estimated total amount of power in kW (kilowatts) required for each of the MCR clusters proposed, including any subsystems (e.g., I/O cabinets, disks, cabling, external networking). The plan will also include the estimated total amount of cooling in Btu (British thermal units) or tons AC required for each of the MCR clusters proposed. List any other facilities requirements.

3.6 Section 6. Project Management

The following Project Management information shall be provided as part of the Offeror's proposal:

3.6.1 Open Source Collaboration

This section may discuss how the partnership will collaborate, over the term of the subcontract and beyond, on open source development. Of particular interest is how the open source development efforts feed into the delivery of MCR cluster and their support and enhancement over the term of the subcontract. Include a model of how you think the LC Dev cluster should be used to support development and software service activities (e.g., bug fix testing).

3.6.2 Project Manager

Name a project manager who will provide supervision within the corporation for the building, testing, delivery and acceptance of the proposed MCR clusters. Provide the resume of this individual and a description of the roles and responsibilities in the format shown in Appendix B. Also indicate the level of authority this individual will carry within the corporation for the management of this activity.

3.6.3 Project Milestones

Provide a draft Gantt chart and work-breakdown structure (WBS), including milestones, for the project in the form of a Microsoft Project 2000 data file with the proposal submission. Indicate which items are being subcontracted to third parties and which items are on the critical path. Also, include a draft pre-ship test plan, a draft post-ship test plan, and a draft acceptance test plan in Microsoft Word 2000 format.

4 BUSINESS PROPOSALS (VOLUME II)

4.1 Section 1. Company Qualifications

Provide the following background information on those contracts during the past two years that the Offeror considers the most comparable to the requirements of this RFP in terms of providing high-end computing systems and working with high-end customers and partners to advance the high-end computing state-of-the-art: contract number; contract type; contract value; contract effective date and term; place of performance; client contacts (include the name and phone number of contractual contact and the name and phone number of technical contact); similarities to University requirements. Offerors are encouraged to include a self-assessment of their performance on these projects including what went well and what did not. Offerors may discuss the latter in the context of a lessons learned scenario.

To assist the University in assessing the financial capability of the Offeror, provide any or all of the following:

a. Audited balance sheets and profit and loss statements for the Offeror's company for the last six completed financial quarters, including interim statements for the current quarter. Also provide copies of your Form 10-K filed with the Securities and Exchange Commission for the past two fiscal years, plus any 10-Q Forms filed since the last Form 10-K.
b. Furnish affirmative assurance, such as endorsements from financial institutions, that your company has sufficient funds necessary to perform the work.
c. State what percentage of your performing organization's estimated total business during the period of performance this proposed subcontract will represent.
d. State the distribution of your last complete fiscal year's sales volume among commercial business, Government prime contracts, and subcontracts under Government prime contracts.
e. Provide a current Dun and Bradstreet Payment Analysis Report (PAR).

Please provide any other relevant and useful information about the financial health of the corporation that will assist the University in assessing the financial capability of the Offeror.

4.2 Section 2. Linux Product Roadmap

Describe the corporation's Linux product roadmap for the next two years. Include hardware and software offerings. Provide information that will give an indication of the depth and scope of the product roadmap as well as the products targeted specifically at high-performance Linux clustering. Indicate the Open Source partnerships the corporation is involved in and how the results of these effort factor into future products.

4.3 Section 3. Proposed Open Source Development Partnership

The Offeror may provide information on the capabilities of the corporation to engage in an open source development partnership and meet the goals set out in Statement of Work Section 1.7. This information should include the corporation's qualifications as a cluster provider; corporation's qualifications as an open source development organization; cluster product roadmap and comparison to the overall MCR strategy; the willingness of the corporation to participate in the open source development, with other partners, of key missing HPTC cluster technology components such as scalable parallel file systems and

cluster resource scheduling. If the Offeror has technology, such as a scalable parallel file system or cluster management tools or cluster resource scheduling that could be contributed to the overall MCR software effort, please indicate that as well.

5 PRICE PROPOSAL (VOLUME III)

5.1 Section 1. System Prices

Offerors shall fully complete the price schedules contained in Appendix A of this Attachment, in accordance with the instructions contained herein. Modifications to the spreadsheets may be made as necessary.

Offerors shall provide a firm fixed price for each system offered. A separate firm fixed-price shall also be provided for each alternate proposal submitted. The total price proposed for each system shall include all software and software license costs, unless explicitly noted. The firm fixed-price shall also include all delivery and installation costs. Maintenance prices shall be based on next business day 8:00 a.m.–5:00 p.m., Pacific Time, service for all systems proposed for the duration of the contract.

An entry must be made for each line item. If the price of a line item is being offered at "No Charge" to the University insert "NC" for that entry. If a line item cannot be separately priced, insert "NSP" for that entry. In the description column, the Offeror must also insert the entry "Note __" directing the University to the "Note" that provides a narrative explanation for all "NSP" entries, identifying which line item includes that price. All accompanying notes shall be included at the end of the price schedule.

5.2 Section 2. Optional Equipment Pricing

Offerors shall fully complete the Optional Equipment Pricing table contained in Appendix A. Pricing should be for a single additional node rack. An entry must be made for each line item. Offerors may include additional options that they think would be of interest to the University. Offeror-defined options must include relevant technical, business, and price information in the appropriate proposal volume.

5.3 Section 3. Lower-Tier Subcontractor Price Information

If the Offeror is proposing to use lower-tier subcontractors, price information for each Subcontractor shall be furnished in the same format and level of detail as prescribed for the Offeror.

6 OTHER DOCUMENTS (VOLUME IV)

6.1 Section 1. Software Branding and Licensing

Submit all branding or certification of software standards adherence required in Section 2.

Submit licensing policies for all categories of software (compilers, libraries, application development tools, etc.) being provided under this Subcontract. Identify all third-party software. Include policies for cluster-wide right-to-use licenses for an unlimited number of users for all software delivered under this Subcontract. Include any required Software License or Maintenance Agreement as well as any licensing requirements for source code.

The following conditions must be incorporated in any resulting license agreement or maintenance agreement:

a. The governing laws of the State of California;
b. The right of assignment of any agreement to the Department of Energy (DOE) for assignment to any succeeding prime contractor to the University. An Offeror's proposal may be considered nonresponsive in the event the Offeror and the University cannot mutually agree to terms and conditions contained in any Software License or Maintenance Agreement.

6.2 Section 2. System Warranty Information

Provide warranty information for all Offeror-provided items as well as any third-party subcontracted items.

6.3 Section 3. Representations and Certifications Form

Complete the Representations and Certifications Form and include it within Section 3 of your Volume IV response.

Appendix A—Price Schedules

The following Price Schedule 1 shall be completed. If the Offeror is not proposing one or more of the cluster components, then that section should be labeled with "NOT BID."

Price Schedule 1 MCR Cluster			
	Item Price	**Quantity**	**Ext Total**
MCR Cluster:			
Compute Nodes			
2.0 GiB Compute Node Memory Kit			
Compute Node Local Disk			
Login Nodes			
4.0 GiB Login Node Memory Kit			
Login Node Local Disk			
MDS Nodes			
MDS Memory			
MDS Local Disk			
MDS Shared Meta Data Disk			
Rack 42U			
Rack 47U			
SPC and RPC (IceBox or Equivalent)			
Cisco 3548-XL-EN			
Management Ethernet Cables			
Integration and testing			
Quadrics QsNet Elan3 Installation			
GA621 1000Base-SW Installation			
Linux Boot Image Installation			
Shipping			
Installation at LLNL			
3 yrs Hardware Maintenance			
3 yrs Software Maintenance			
Other (List Each Item)			
MCR Cluster Subtotal:			

Hot Spare Cluster and On-Site Spares			
Compute Nodes			
2.0 GiB Compute Node Memory Kit			
Compute Node Local Disk			
Login Node			
4.0 GiB Login Node Memory Kit			
Rack 42U			
SPC and RPC (IceBox or Equivalent)			
Cisco 3548-XL-EN			

Price Schedule 1 MCR Cluster			
	Item Price	**Quantity**	**Ext Total**
Management Ethernet Cables			
Integration and testing			
Linux boot image installation			
Shipping			
Installation at LLNL			
Other on-site FRUs (List Each Item)			
Other (List Each Item)			
MCR HSC and On-Site Spares Subtotal:			
MCR Total:			

The following Price Schedule 2 shall be completed. If the Offeror is not proposing one or more of the cluster components, then that section should be labeled with "NOT BID."

Price Schedule 2 Optional Equipment			
Options:	**Item Price**	**Quantity**	**Ext Price**
Additional Compute Node Scalable Unit:			
Compute Nodes			
2.0 GiB Compute Node Memory Kit			
Compute Node Local Disk			
47U Rack			
42U Rack			
SPC and RPC (IceBox or Equivalent)			
Cisco 3548-XL-EN			
Management Ethernet Cables			
Integration and testing			
Quadrics QsNet Elan3 Installation			
Linux Boot Image Installation			
Shipping			
Installation at LLNL			
3 yrs Hardware Maintenance			
3 yrs Software Maintenance			
Other (List Each Item)			
Compute Node Scalable Unit Subtotal:			
Additional Compute Node Rack:			

Price Schedule 2 Optional Equipment			
Compute Nodes			
	Item Price	**Quantity**	**Ext Price**
2.0 GiB Compute Node Memory Kit			
Compute Node Local Disk			
42U Rack			
SPC and RPC (IceBox or Equivalent)			
Cisco 3548-XL-EN			
Management Ethernet Cables			
Integration and Testing			
Quadrics QsNet Elan3 Installation			
Linux Boot Image Installation			
Shipping			
Installation at LLNL			
3 yrs Hardware Maintenance			
3 yrs Software Maintenance			
Other (List Each Item)			
Compute Node Rack Subtotal:			
Additional Options:			
4.0 GiB Memory Kit for Compute Node			
3 yrs Maintenance for 4.0 GiB Memory Kit			
Options Total:			

Appendix B—Résumé Format

Name:

Proposed Title/Assignment on Contract:

Experience Summary: (A succinct summary of overall experience and capabilities including the name and phone number of the client that may be used for reference checking):

Current Assignment (include description and from/to dates):

Current Client/Customer (include current address and telephone number):

Education:

Technical Qualifications:

Description(s) of Experience relevant to Proposed Contract Assignment:

Provide Three Business Related References:

List Awards/Honors/Publications:

RESUMES MUST NOT EXCEED FOUR (4) PAGES IN LENGTH
References listed in the resumes may be contacted to verify relevant experience as part of the evaluation process.